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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/376,875	08/18/1999	GREGORY M. CHRYSLER	884.148US1	7059
21186	7590	03/07/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH 1600 TCF TOWER 121 SOUTH EIGHT STREET MINNEAPOLIS, MN 55402			LEO, LEONARD R	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

09/376,875

Applicant(s)

CHRYSLER ET AL.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9 and 22-46 is/are pending in the application.
- 4a) Of the above claim(s) 1-3,5-9,22-27 and 32-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-31 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

The amendment filed on December 12, 2005 has been entered. Claims 1-3, 5-9 and 22-46 are pending, and claims 1-3, 5-9, 22-27, 32-43 remain withdrawn from further consideration.

#### ***Claim Objections***

Claim 46 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The recitation of “epoxy” does not further limit the recitation of “solder or braze” in claim 45.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morosas in view of Azar et al.

Morosas (Figure 4, column 3, lines 60-65) discloses all the claimed limitations except a specific aspect ratio of the fin height to fin thickness.

Azar et al discloses a heat sink comprising a folded fin in serpentine fashion having an aspect ratio of the fin height to fin thickness of about 18 to 200 (column 4, lines 3-45,  $\tau/H = 0.005$  to  $0.055$ ) for the purpose of optimizing heat exchange.

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Since Morosas and Azar et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Azar et al would have been recognized in the pertinent art of Morosas.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Morosas an aspect ratio of the fin height to fin thickness of about 18:1 to 200:1 for the purpose of optimizing heat exchange as recognized by Azar et al.

Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morosas in view of Azar et al as applied to claims 44-46 above, and further in view of Bishop et al.

The combined teachings of Morosas and Azar et al lacks a second fan.

Bishop et al discloses a heat sink comprising a first fan 5 and a second fan 6 for the purpose of providing turbulent and impingement airflow to improve heat exchange.

Since Morosas and Bishop et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Bishop et al would have been recognized in the pertinent art of Morosas.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Morosas a second fan for the purpose of providing turbulent and impingement air flow to improve heat exchange as recognized by Bishop et al. Although, the fans are remotely positioned from the heat sink, it would have been obvious to one of ordinary skill in the art to position the fans onto the heat sink to minimize pressure loss from the fan to the heat sink.

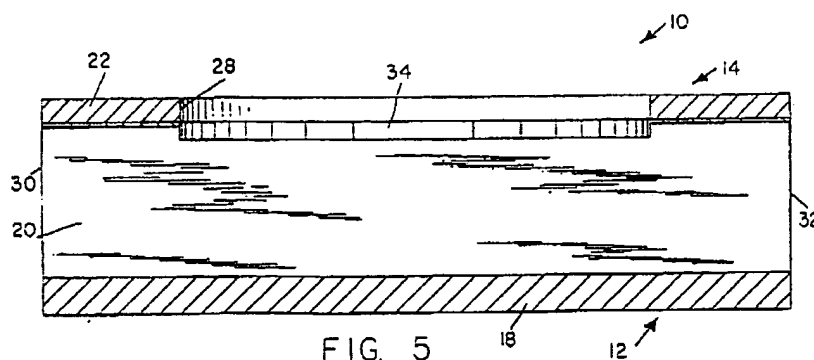
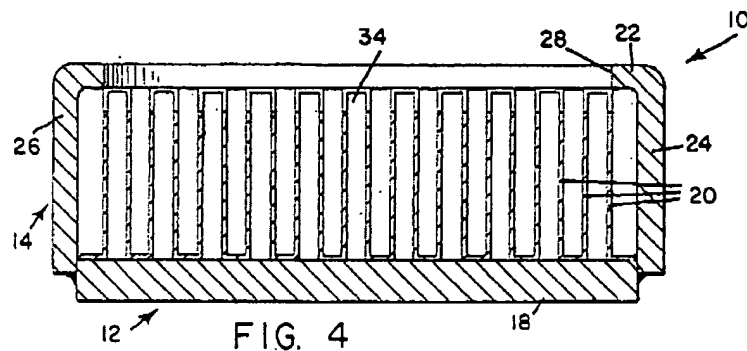
### *Response to Arguments*

The objection of claim 46 under 37 CFR 1.75(c) is maintained, but with respect to claim 45 instead of claim 44.

The declaration filed on October 15, 2001 and December 12, 2005 under 37 CFR 1.131 is sufficient to overcome the Wotring reference.

Applicant's arguments have been fully considered but they are not persuasive.

The Examiner agrees with applicants' characterization of Morosas. However, the claims do not recite "semi-circular" arches and do not preclude a housing mounted on top of the fins. The definition of arch is "A structure, especially one of masonry, forming the curved, pointed, or *flat upper edge of an open space* and supporting the weight above it, as in a bridge or doorway." Lastly, as shown below, Morosas (column 3, lines 15-20 and 63-65) discloses severed or trimmed openings forming a plenum 34 in accordion folded fins 20.



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The Examiner agrees with applicants' characterization of Azar. However, as discussed above, Morosas discloses arched shaped fins with openings on top. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Azar explicitly teaches employing a fin height to fin thickness aspect ratio of about 18 to 200 to optimize heat transfer, in both an accordion or extruded type heat sink.

With respect to the rejection of claims 28-31, the secondary reference of Bishop et al teaches one of ordinary skill in the art to employ a second fan for the purpose of providing turbulent and impingement air flow to improve heat exchange. Applicants merely argue that Bishop et al does not cure the alleged deficiency of Morosas.

No further comments are deemed necessary at this time.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3753

March 1, 2006